

Space and Missile Systems Center



Military GPS User Equipment (MGUE)

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Program Manager
29 Apr 15

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Overview

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- MGUE Acquisition Strategy
- MGUE Increment 1 (Inc 1) Schedule
- MGUE Inc 1 Test Plan
- MGUE Increment 2 (Inc 2) Plan
- M-Code Receiver Statistics



MGUE Program Summary

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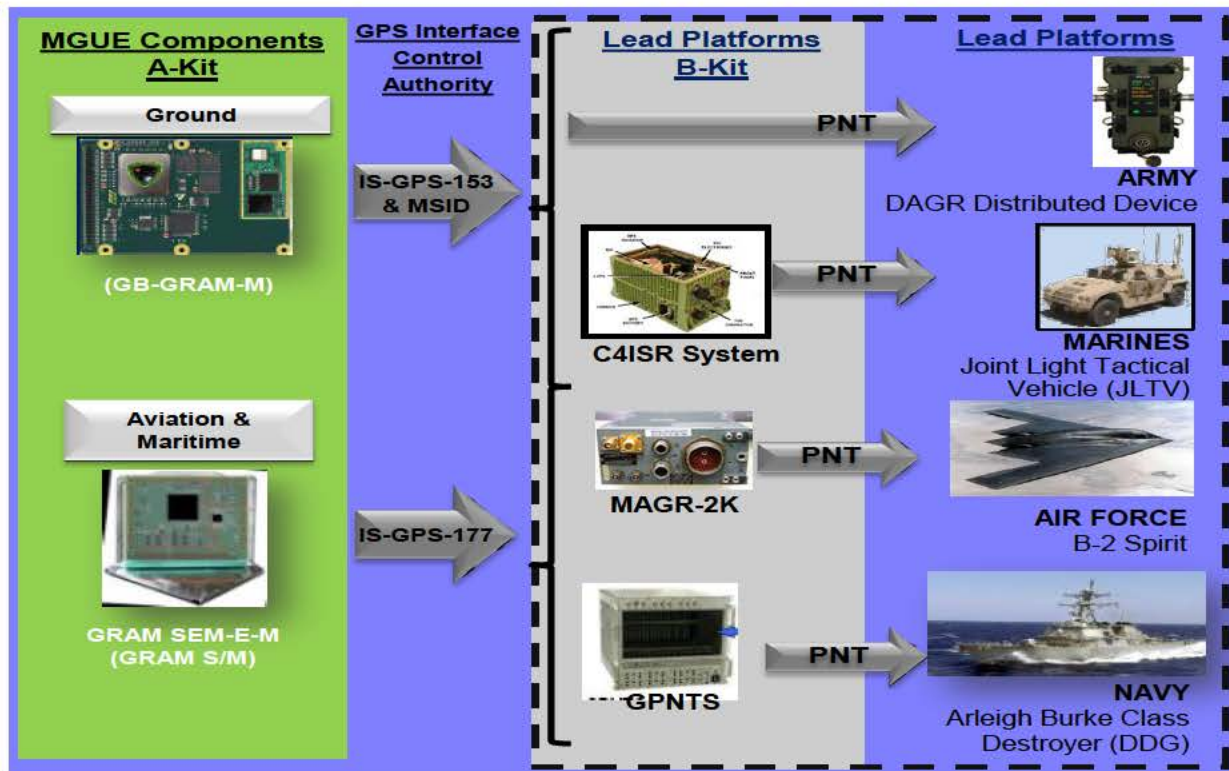
- Incremental Acquisition effort to develop form factors
 - Increment 1 (Inc 1): Ground (GB-GRAM-M) and Aviation/Maritime (GRAM-S/M)
 - Inc 1 form factors evaluated to be at high level of maturity
- Responded to Acquisition Decision Memorandum 20 Feb 14
 - Direction from USD(AT&L) to accelerate MGUE Increment 1
 - Pulled forward items from EMD phase and proceeding to MS B/C
 - Updated Acquisition Strategy Document, signed 10 Apr 15
- Requirements approved by JROC on 24 Jul 14
- Integrate Inc 1 form factors into service-nominated lead platforms
 - Ground: DAGR Distributed Device (D3) and Joint Light Tactical Vehicle (JLTV)
 - Air: B-2
 - Maritime: Arleigh Burke Class Missile Destroyer

MGUE Inc 1 Is On An Accelerated Path

MGUE Inc 1 Content

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- A commercial market driven acquisition approach
- Accelerating from TD phase to production



Incremental acquisition strategy sets basis for future

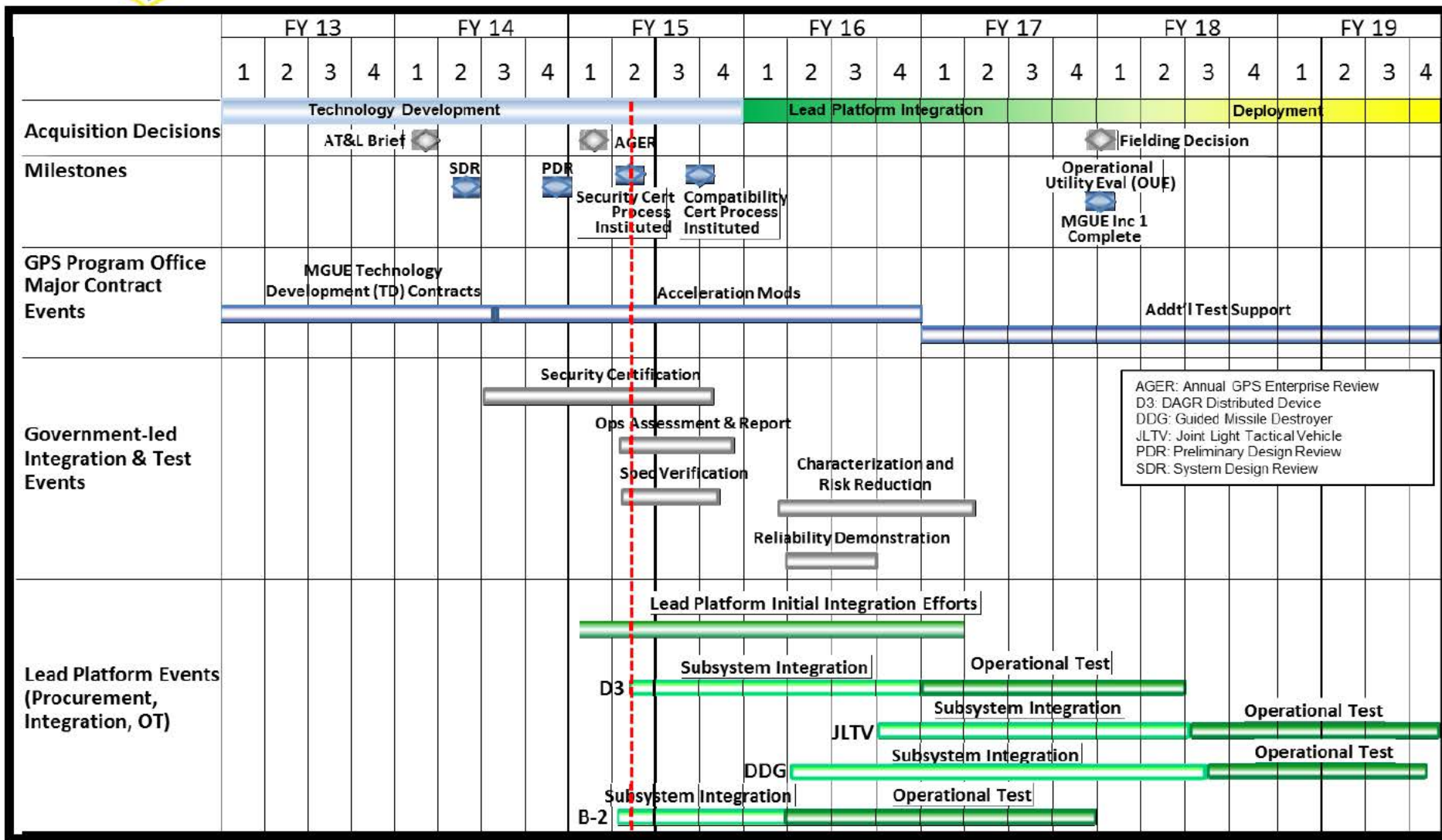


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Rockwell Collins

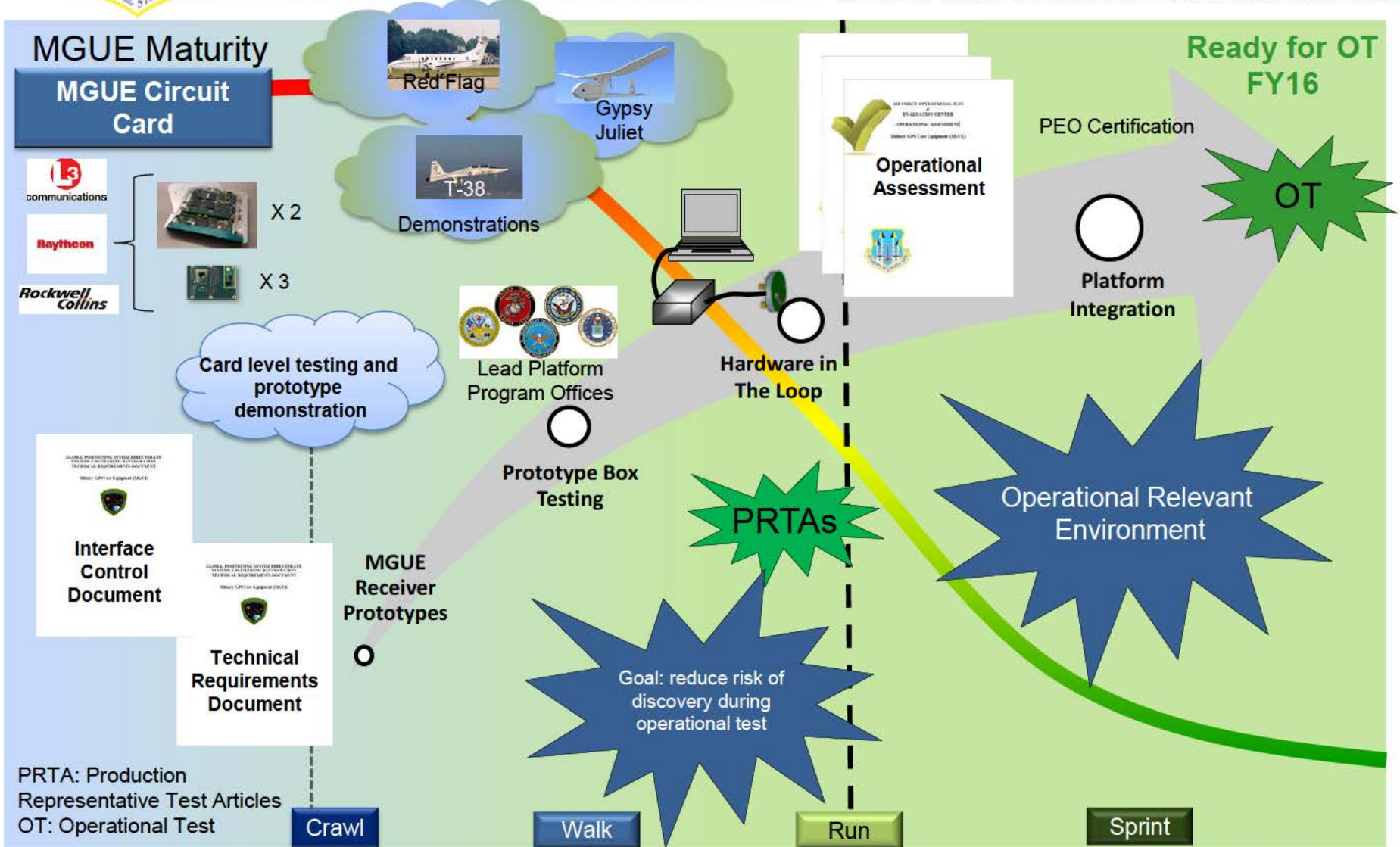
MGUE Inc 1 Program Schedule

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MGUE Test Strategy: Path to Operational Test in FY16

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MGUE Performance: NavFest 2015

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- Utilized C-12J to showcase MGUE capabilities
 - More mature hardware/software than Red Flag
 - Additional early integration of B-2 receiver
 - Able to track M-Code in jamming environment
- Test Successful – MGUE card held lock!
 - M-Code tracked in both contested & benign environments



Aviation Receiver Held M-Code, All Other GPS Receivers Lost Lock



MGUE Inc 2 Current Status

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- JCIDS: Inc 2 Capabilities Development Document (CDD) in coordination
 - AFROC approved Draft CDD
 - Defines 3 items:
 - Precision Guided Munitions (PGM)
 - Space Receiver
 - Handheld (HH)
- PPBE: FY16 PB adds MGUE Inc 2
 - Starts in FY17, accelerating two years from FY19 start





Inc 2 Acceleration: Ongoing Efforts to Leverage Inc 1

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- Possible Materiel solutions exists for 2 of 3 Inc 2 Platforms
 - Teaming with Army to integrate Increment 1 (Inc 1) technology into Precision Guided Munitions (PGM)
 - Analysis indicates Inc 1 technology can withstand PG environments
 - AF developing low size/weight/power GPS M-Code space receiver
 - Completed Preliminary Design Reviews – Mar 2015
- Potential materiel solution for third platform
 - Investigating NDI to meet Handheld requirements





MGUE Inc 2: Handheld Acceleration

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- Continue accelerated commercial market driven approach by using existing Handheld with MGUE Inc 1 receiver
- Inc 2 requires handheld as an end item
- Opportunity to leverage Inc 1 efforts to handheld application
- USAF conducting market research of handheld vendors with potential to integrate MGUE Inc 1 ASIC into an existing product
- Seeking approval to pursue handheld as a non-developmental item



History of GPS User Equipment Development at SMC

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**Small
Lightweight
GPS Receiver
(SLGR)**



**Precision
Lightweight
GPS Receiver
(PLGR)**



**180,000 units,
Bosnia and OIF**

**Defense
Advanced
GPS Receiver
(DAGR)**



**500,000 units,
since 2005**

**Ground Based-
GPS Receiver
Application
Module
(GB-GRAM)**



**100,000 units,
since 2005**

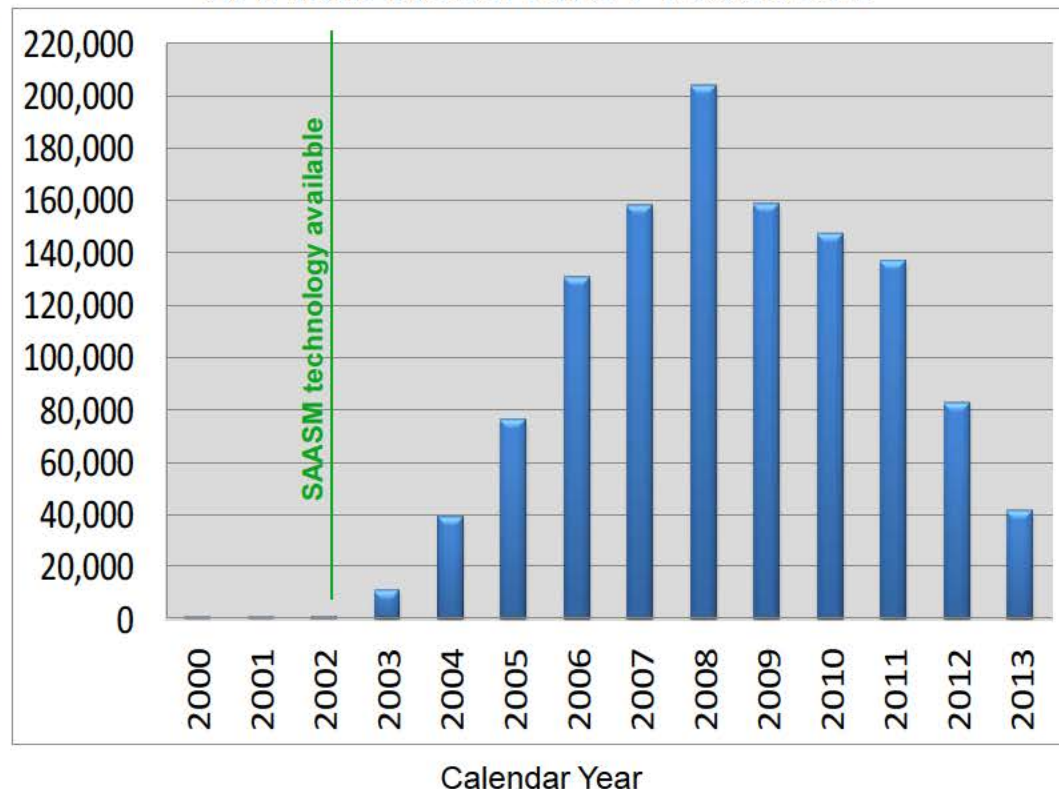
MGUE Next Step in Long History



User Equipment Fielding vs Availability

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SAASM Receivers Processed



User Equipment	Quantity in the field
DAGR (SAASM)	500,000+
GB-GRAM (SAASM)	100,000+
Projected M-Code Receivers (FY17-FY30)	~1.5M+

DAGR: Defense Advanced GPS Receiver

GB-GRAM: Ground-Based GPS Receiver Application Module

SAASM: Selective Availability Anti-Spoofing Module

M-Code receiver demand expected to increase with availability



Summary

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- MGUE is an incremental acquisition approach
- MGUE is operating on time
- MGUE Inc 1 accelerating to production
- MGUE Increment 2 will be a pre-planned product improvement
- M-Code is the way forward for GPS receivers